

**WE CLAIM:**

1. A process for heating a hydrocarbon stream including oxygenates and hydrocarbon unsaturates with reduction in formation of heavy molecular weight products during heating, the process comprising:
  - 5 a) adding hydrogen to the hydrocarbon stream to form a mixed stream; and
  - b) heating the mixed stream,
  - c) wherein sufficient hydrogen is added to reduce the amount of heavy molecular weight products formed during heating as compared to a heated hydrocarbon stream without added hydrogen.
- 10 2. The process according to claim 1 wherein the oxygenates and unsaturates are selected from the group consisting of normal alcohols, mono-olefins, and mixtures thereof.
- 15 3. The process of claim 2, wherein the hydrocarbon stream comprises at least 0.5 wt% normal alcohols as oxygenates.
4. The process of claim 3, wherein the normal alcohols boil in the range of from about 50°C to about 350°C.
5. The process of claim 1, wherein the hydrocarbon stream is derived from a Fischer-Tropsch process.
- 20 6. The process of claim 5, wherein the oxygenates, and unsaturates are selected from the group consisting of normal alcohols, mono-olefins and mixtures thereof.
7. The process of claim 2, wherein the hydrocarbon stream comprises at least about 5.0 wt % mono-olefins.
- 25 8. The process of claim 2, wherein the hydrocarbon stream comprises at least about 15.0 wt % mono-olefins.
9. The process of claim 2, wherein the hydrocarbon stream comprises at least about 25.0 wt % mono-olefins.
10. The process of claim 9, wherein the mono-olefins boil in the range of from about -105 to 350°C.
11. The process of claim 1, wherein the hydrocarbon stream is a Fischer-Tropsch low-boiling fraction in a range from about -65°C to about 350°C.
12. The process of claim 1, wherein the hydrogen-containing gas is added in an amount less than about 500 Standard Cubic Feet per Barrel (SCFB).
- 35 13. The process of claim 12, wherein the hydrogen-containing gas is added in an amount less than about 100 SCFB.
14. The process of claim 13, wherein the hydrogen-containing gas is added in an amount less than about 50 SCFB.

15. The process of claim 1, wherein the hydrogen is provided by a hydrogen-containing gas.
16. The process of claim 15, wherein the hydrogen-containing gas is from a hydrogen production unit.
- 5 17. The process of claim 15, wherein the hydrogen-containing gas is recycled from a hydroprocessing operation.
18. The process of claim 15, wherein the hydrogen-containing gas is syngas or a fraction thereof.
19. The process of claim 1, wherein the mixed stream is heated to a temperature in the  
10 range of from about 120°C to about 400°C.
20. The process of claim 1, further comprising passing the heated mixed stream to a hydroconversion process.
21. In a refinery and/or chemical process which includes the heating of a hydrocarbon stream which includes process equipment, polymerizable fouling precursors, the improvement which comprises injecting an effective amount of a hydrogen containing gas into the hydrocarbon stream prior to heating operations to reduce or minimize equipment fouling.
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22. The process according to claim 21, wherein the hydrogen-containing gas is injected at a rate of from 500 SCFB to 50 SCFB.
- 20 23. The process according to claim 22, wherein the injection is prior to the group selected from heat exchangers, furnaces or combinations thereof.
24. A process for hydroconversion of a hydrocarbon stream including oxygenates and hydrocarbon unsaturates with reduction in formation of heavy molecular weight products during heating, the process comprising:
- 25 a) adding a first hydrogen-containing gas to the hydrocarbon stream sufficient to reduce the amount of heavy molecular weight products formed during heating as compared to a heated hydrocarbon stream without added hydrogen, to form a mixed stream;
- b) heating the mixed stream;
- c) adding a second hydrogen-containing gas to the heated mixed stream sufficient to effect hydroconversion of the mixed stream, to form a hydroconversion feed stream;
- 30 d) heating the hydroconversion feed stream to reaction temperature; and
- e) hydroconverting the hydroconversion feed stream.
- 35 25. The process of claim 24, wherein the first hydrogen-containing gas is added in an amount less than about 500 Standard Cubic Feet per Barrel (SCFB).
26. The process of claim 25, wherein the first hydrogen-containing gas is added in an

amount less than about 100 SCFB.

27. The process of claim 26, wherein the first hydrogen-containing gas is added in an amount less than about 50 SCFB.
28. The process of claim 24, wherein the second hydrogen-containing gas is added in an amount more than 750 SCFB.
29. The process of claim 24, wherein the mixed stream is heated to a temperature in the range of from about 120°C to about 300°C.
30. The process of claim 24, wherein the hydroconversion feed stream is heated to a temperature on the range of 250°C to about 400°C.